REMARKS/ARGUMENTS

Claims 1-18 are pending. Claims 1-18 were rejected as being obvious based on U.S. Patent No. 5,277,854 to Hunt in view of U.S. Patent No. 5,900,304 to Owens.

The present claims are directed to an apparatus and two-step process for forming a three-dimensional fibrous panel, and to a fibrous panel made thereby. In a first step, a fiber stock is deposited into a first mold member comprising a porous support plate and a plurality of rigid mold pieces attached to the support plate, the mold pieces comprising truncated 3D tapered structures and being spaced apart on the support plate to form channels between the mold pieces. The fiber stock covers the mold pieces. The fiber stock is pressed into the first mold member to dewater the stock through the porous support plate, and the resulting fibrous panel is removed from the first mold member. The fibrous panel thus comprises a planar panel having integrally formed ribs projecting from one side thereof.

In the second step, the fibrous panel is placed into a second mold member generally similar to the first one, except that the mold pieces of the second mold member have a larger cross-section and smaller taper than those of the first mold member. The fibrous panel is pressed into the second mold member to further dewater and densify the panel.

Hunt discloses a process employing molds that have elastomeric mold pieces that expand laterally when compressed vertically. Hunt discloses a two-step densification process employing two such molds, wherein the second mold has a different set of elastomeric mold pieces. The fiber stock does not cover the mold pieces, such that the fibrous panel is produced as an open cell grid. The second mold is inserted into the open cells of the panel from the opposite direction to that of the first mold.

The Office Action acknowledges that Hunt does not teach the use of rigid mold pieces, but asserts that Hunt suggests the use of more-rigid mold pieces than in a prior patent of Hunt and Setterholm (U.S. Patent No. 4,702,870). This is erroneous. In fact, at col. 10, lines 9-12, Hunt states that the mold pieces of the '854 patent are actually *softer grades of rubber* than those

used in the prior '870 patent. Thus, Hunt teaches away from using rigid mold pieces.

Additionally, while the mold pieces in Hunt are tapered in their uncompressed state, in the compressed state Hunt shows the mold pieces as non-tapered (Figure 6). The mold pieces expand laterally when compressed so as to densify the ribs of the panel in the lateral direction, and then return to their uncompressed state when the pressing force is removed. As such, the taper of the mold pieces appears not to be a critical parameter in terms of facilitating removal of the panel from the mold. Removal instead is made possible by the contraction of the mold pieces when the pressing force is removed. It appears that the mold pieces are tapered primarily so that when they are compressed they will assume a straight-sided (i.e., untapered) shape as illustrated in Figure 6. Apparently, because the larger-diameter bottom end of each mold piece is secured to the porous screen it cannot significantly expand in diameter, but the opposite free end is unrestrained and can expand substantially in diameter. Thus, the tapered shape apparently results in the free end of the mold piece growing in diameter to match the diameter of the fixed bottom end (Figure 6) so that the ribs of the panel are straight-sided. Hunt states that softer grades of rubber are desired so as to make the sides straighter (col. 10, lines 9-14); this is consistent with the above explanation.

Accordingly, Hunt's teachings with respect to taper of the mold pieces would not even be a relevant consideration that would be adopted by a person of ordinary skill in the art using a mold with rigid mold pieces.

Hunt also teaches away from inserting the fibrous panel into the second mold from the same side as the first mold. Hunt repeatedly emphasizes the importance of inserting the second mold into the opposite side of the panel from the first mold.

Owens merely discloses the use of a rigid mold for producing a pressed fiber panel. Owens emphasizes that his panel is formed in a single molding operation (col. 7, lines 62-66). To make the three-dimensional structure of his panels, Owens must employ a mold having complementary male and female mold members.

In summary, Hunt teaches away from using rigid mold pieces, teaches away from inserting the fibrous material/panel into the same side of both molds, and employs taper of the mold pieces for a purpose that is not applicable to the use of rigid mold pieces. Owens teaches a single-step process using a rigid mold. Based on these teachings, Applicant respectfully submits that the process and apparatus defined by the present claims would not have been suggested by the cited references.

Thus, with respect to Claim 1, neither Hunt nor Owens, nor their combination, teaches or suggests providing first and second mold members each comprising a porous support plate and a plurality of rigid mold pieces attached to the support plate as claimed. The references do not teach or suggest removing the panel from the first mold member and inserting the panel into the second mold member as claimed, which of necessity requires the panel to be inserted into the same side of the second mold as the first mold—not the opposite side as taught by Hunt—since the ribs of the panel must go into the channels defined between the mold pieces of the second mold member and cannot penetrate through the porous support plate of the mold. Similarly, analogous features of Claim 13 are not taught or suggested by the references.

With respect to Claim 2, the references do not teach or suggest first and second mold members each comprising a porous support plate and a plurality of rigid mold pieces attached to the support plate as claimed.

For the reasons noted above, it is respectfully submitted that the present claims are patentable over the cited references.

Conclusion

Based on the above remarks, it is submitted that the application is in condition for allowance.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper.

However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

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